Honeywell

W8665A,E
RF Receiver Module

INSTALLATION INSTRUCTIONS

APPLICATION

The W8665A,E RF Receiver Module (RM) provides 24 Vac control of HVAC equipment when used with a T8665A Chronotherm® IV Wireless Programmable Thermostat. The W8665A can be used with 1H/1C single-zone conventional applications. The W8665E can be used with up to three zones when used with a Honeywell EMM-3 Electronic MiniZone™ Panel, EMM-3U Universal Electronic MiniZone™ Panel, TZ-3 TotalZone® Control Panel or TZ-4 TotalZone® Zone Control Panel. See Table 1.

Table 1. W8665 Description.

Model	Application	Stages	Zones	Comments
W8665A	Conventional gas, oil or electric systems.	1H/1C	One	Use with T8665A Wireless Thermostat.
W8665E	Conventional gas, oil or electric systems.	1H/1C	Up to three	Use with T8665A Wireless Thermostats. Use with EMM-3 Electronic MiniZone™ Panel
	Single or multi-stage conventional or heat pump systems.	Up to 2H/2C		Use with T8665A Wireless Thermostats. Use with EMM-3U Universal Electronic MiniZone™ Panel.
		1H/1C or up to 3H/2C		Use with T8665A Wireless Thermostats. Use with TZ-3 TotalZone™ Zone Control Panel[a] or TZ-4 TotalZone® Zone Control Panel[b].

[a]TZ-3 can work with up to 30 zones. Must use multiple W8665E Receiver Modules.
[b]TZ-4 can work with up to 32 zones. Must use multiple W8665E Receiver Modules.

INSTALLATION

⚠ CAUTION

Equipment Damage Hazard.
Do not mount W8665 inside HVAC equipment.
Do not mount on metal surfaces.
Mount only on wall.

1. Mount the thermostats in each zone of the living space using the installation instructions provided with each thermostat.
2. Mount the dampers in the ductwork using the installation instructions provided with each damper.
3. Mount the W8665 RF Receiver Module near the HVAC equipment on a wall. See Fig. 1.
4. Level the W8665 for appearance only.

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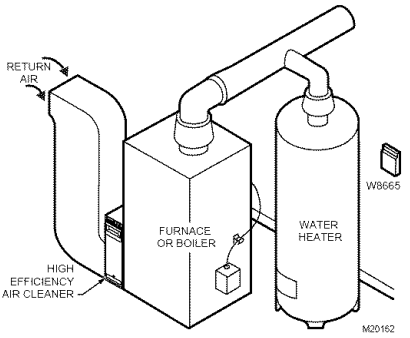

Fig. 1. W8665 mounting location

WIRING

All wiring must comply with local electric codes and ordinances. See Fig. 2 through 16 wiring diagrams for specific applications. Refer to Tables 2 and 3 for terminal designations.

⚠ CAUTION

Voltage Hazard.
Can cause electrical shock or equipment damage.
Disconnect power before beginning installation.

Wiring the W8665A

Connect the RF Receiver Module to the equipment loads. See Fig. 2 through 6 and Table 2.

Table 2. W8665A Terminal Designations.

Terminal Designation	Function
R	24 Vac transformer hot. Powers RF receiver module.
C	24 Vac transformer common. Powers RF receiver module.
RZ	24 Vac system transformer. Factory installed jumper between R and RZ terminals. Use RZ as a convenience terminal, as desired.
Y	Stage 1 cool.
W	Stage 1 heat.
G	Fan

Wiring the W8665E

Connect the RF Receiver Module zones to the appropriate thermostat zone connections on the EMM-3 Electronic MiniZone™ Panel, EMM-3U Universal Electronic MiniZone™ Panel, TZ-3 TotalZone ™ Zone Control Panel or TZ-4 TotalZone® Zone Control Panel. See Fig. 7 through 16 and Table 3.

Table 3. W8665E Terminal Designations.

Terminal Designation	Function
R	24 Vac transformer hot. Powers RF receiver module.
C	24 Vac transformer common. Powers RF receiver module.
RZ	24 Vac system transformer. The three RZ terminals are internally connected. Connect RZ to Zone 1 R terminal on zone panel, as desired. (Not required.)
RZ	24 Vac system transformer. The three RZ terminals are internally connected. Connect RZ to Zone 2 R terminal on zone panel, as desired. (Not required.)
RZ	24 Vac system transformer. The three RZ terminals are internally connected. Connect RZ to Zone 3 R terminal on zone panel, as desired. (Not required.)
Zone 1 Y	Stage 1 cool.
Zone 1 W	Stage 1 heat.
Zone 1 G	Fan
Zone 2 Y	Stage 1 cool.
Zone 2 W	Stage 1 heat.
Zone 2 G	Fan
Zone 3 Y	Stage 1 cool.
Zone 3 W	Stage 1 heat.
Zone 3 G	Fan

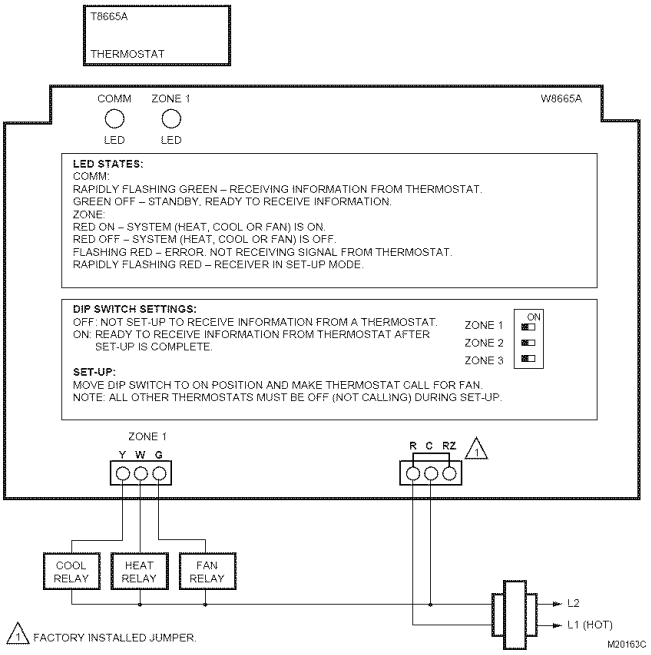

Fig. 2. Connecting the W8665A RF Receiver Module to the equipment.

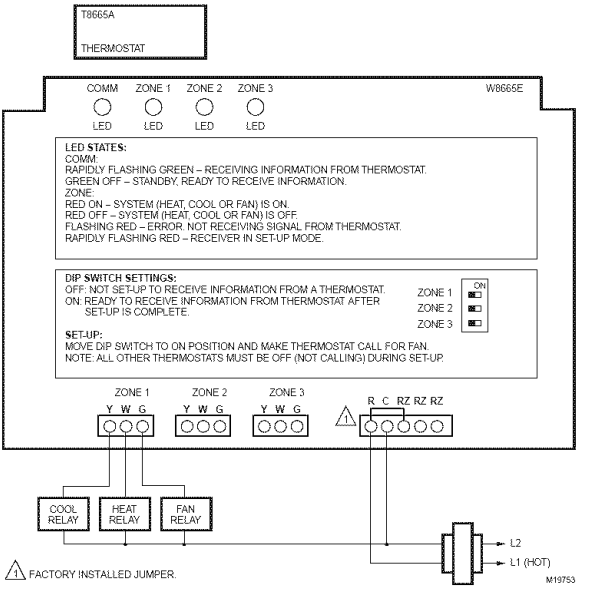

Fig. 3. Connecting the W8665E RF Receiver Module to the equipment in a one-zone application.

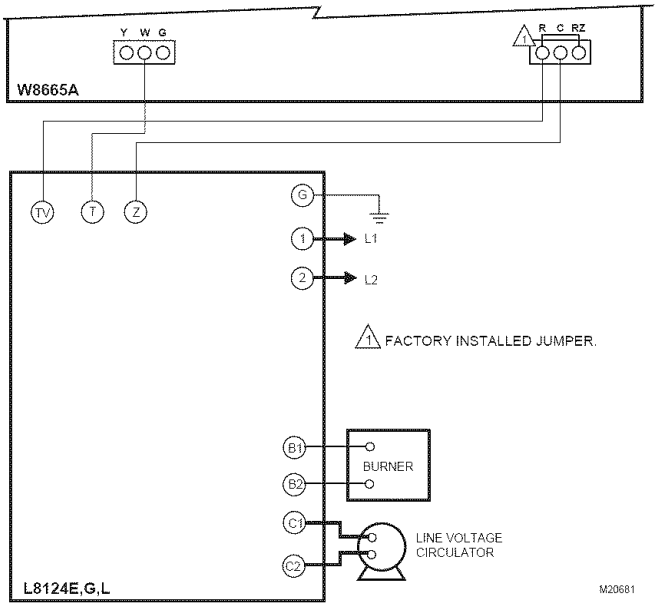

Fig. 4. Single zone hot water heat using an L8124E, G, L Aquastat.

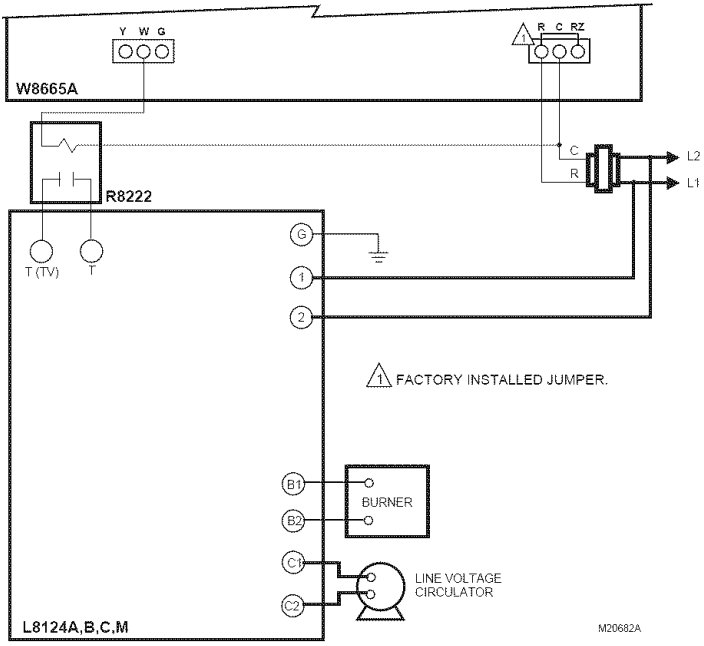

Fig. 5. Single zone hot water heat using an L8124A,B,C,M or L8148 Aquastat, an R8222 relay and a transformer.

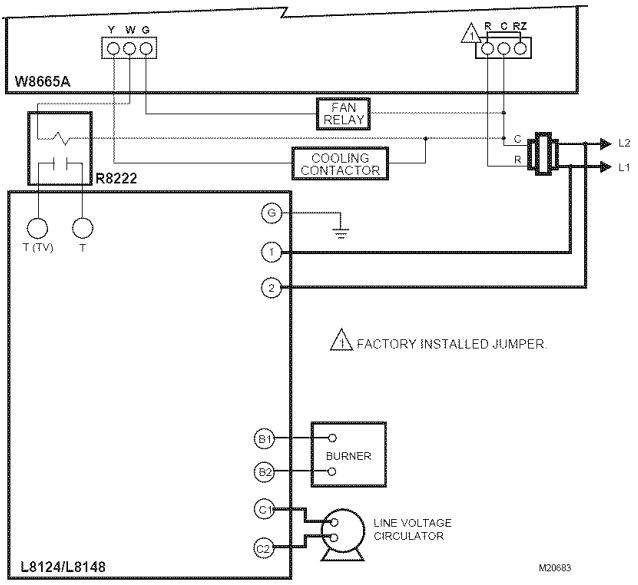

Fig. 6. Single-zone hot water heat with cooling using an L8124 or L8148 Aquastat, an R8222 relay and a transformer.

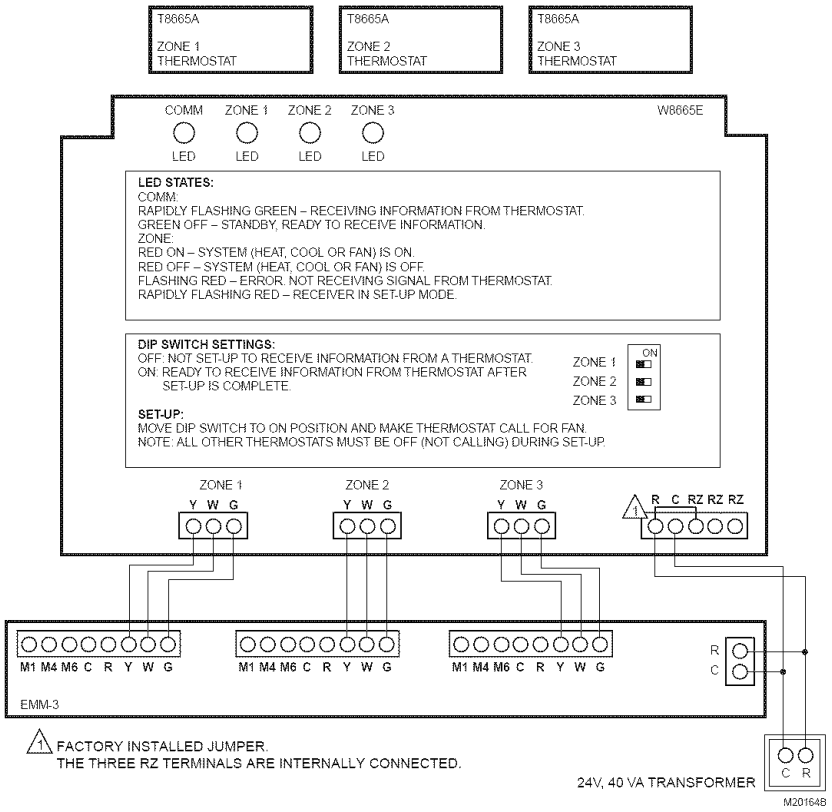

Fig. 7. Connecting the W8665E RF Zone™ Panel to the EMM-3 MiniZone™ Panel to control 1H/1C with up three thermostat zone connections.

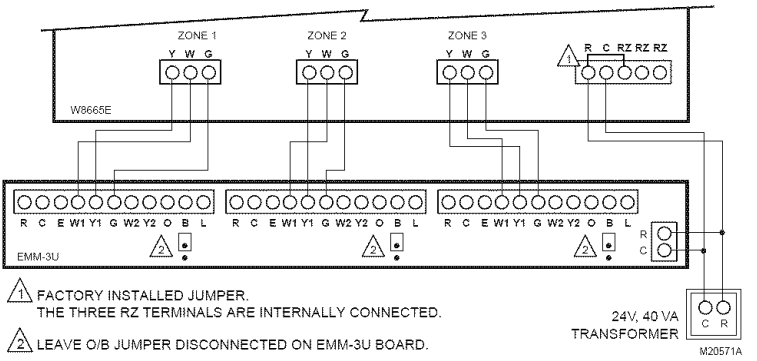
ZONE 1
Y W G
ZONE 2
Y W G
ZONE 3
Y W G
R C RZ RZ RZ
W8665E
R C E W1 Y1 G W2 Y2 O B L
R C E W1 Y1 G W2 Y2 O B L
R C E W1 Y1 G W2 Y2 O B L
R
C
EMM-3U
1 FACTORY INSTALLED JUMPER.
THE THREE RZ TERMINALS ARE INTERNALLY CONNECTED.
2 LEAVE O/B JUMPER DISCONNECTED ON EMM-3U BOARD.
24V, 40 VA
TRANSFORMER
C R
M20571A

Fig. 8. Connecting the W8665E RF Zone™ Panel to the EMM-3U Zone Control Panel to operate up to 2H/2C with up to three thermostat zone connections.

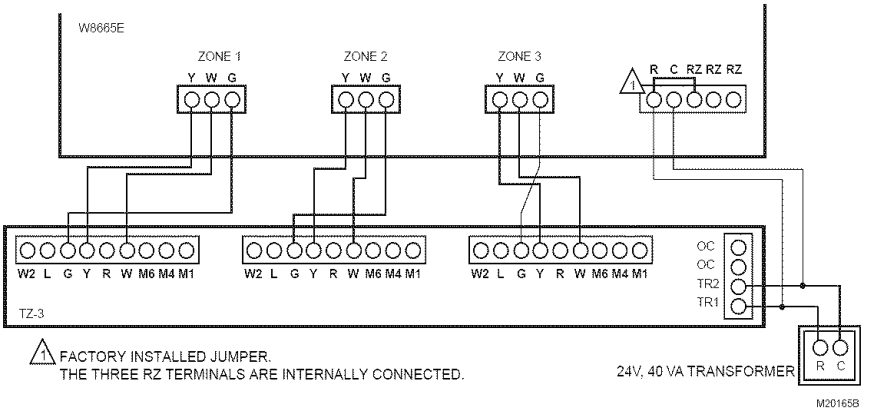

Fig. 9. Connecting the W8665E RF Zone™ Panel to the TZ-3 TotalZone® Zone Control Panel to operate up to 3H/2C with up to three thermostat zone connections.

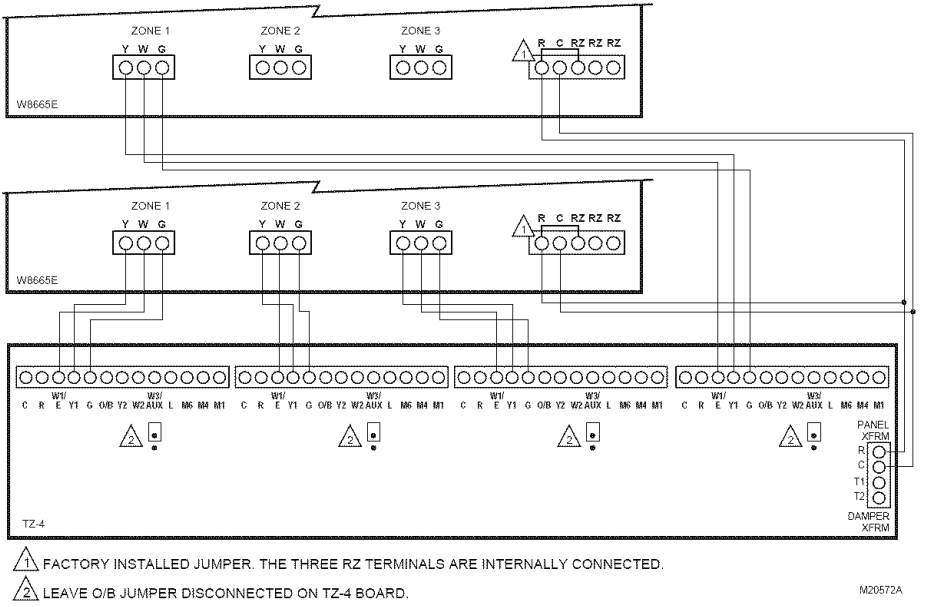

Fig. 10. Connecting the W8665E RF Zone™ Panel to the TZ-4 TotalZone® Zone Control Panel to operate up to 3H/2C with up to three thermostat zone connections.

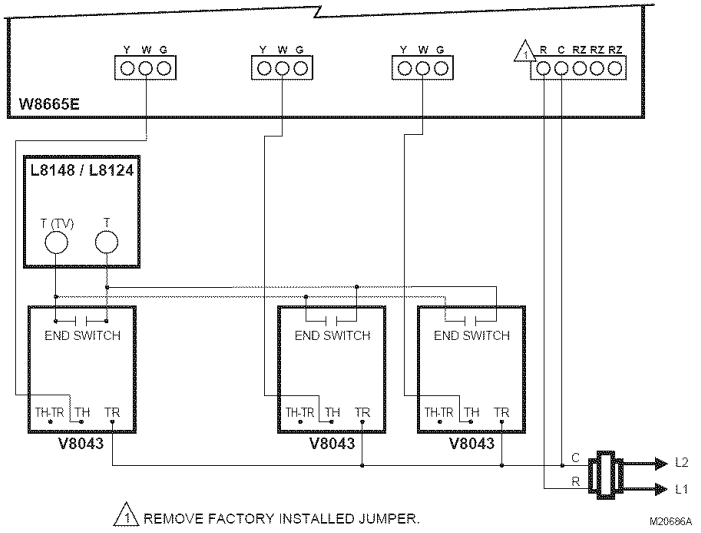

Fig. 11. Zoned hot water heat using V8043F zone valves, an L8148/L8124 Aquastat and a transformer.

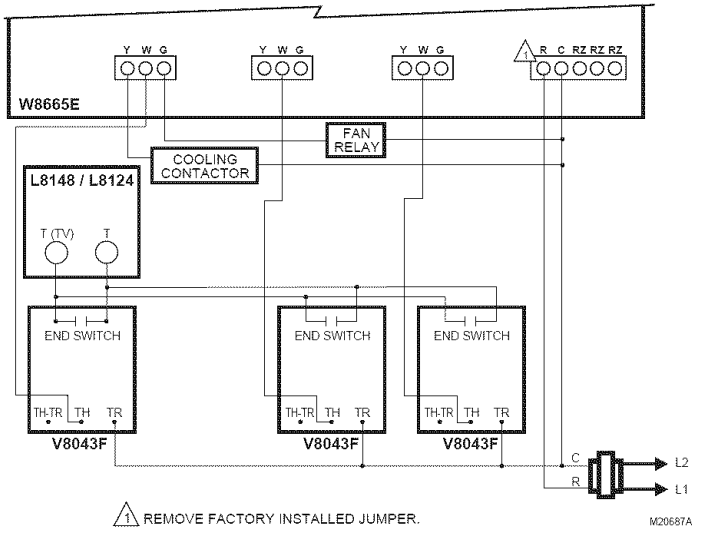

Fig. 12. Zoned hot water heat and single-zone cooling using V8043F Zone Valves, and L8148/L8124 Aquastat and a transformer.

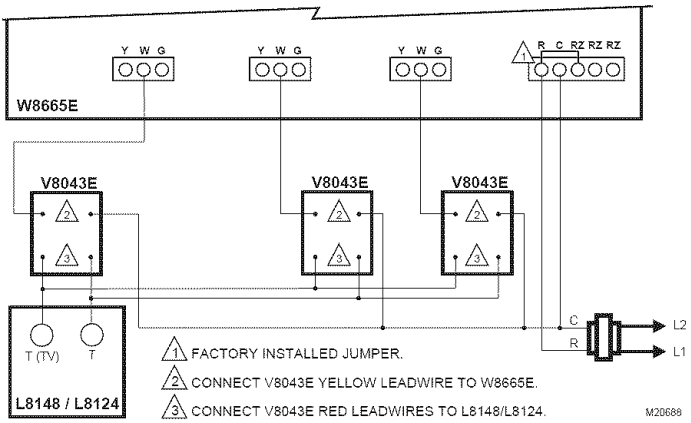

Fig. 13. Zoned hot water heat using V8043E Zone Valves, an L8148/L8124 Aquastat and a transformer.

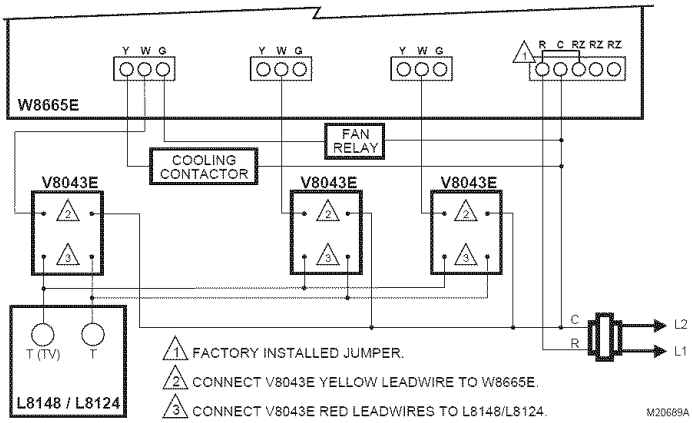

Fig. 14. Zoned hot water heat and single-zone cooling using V8043E Zone Valves, an L8148/L8124 Aquastat and a transformer.

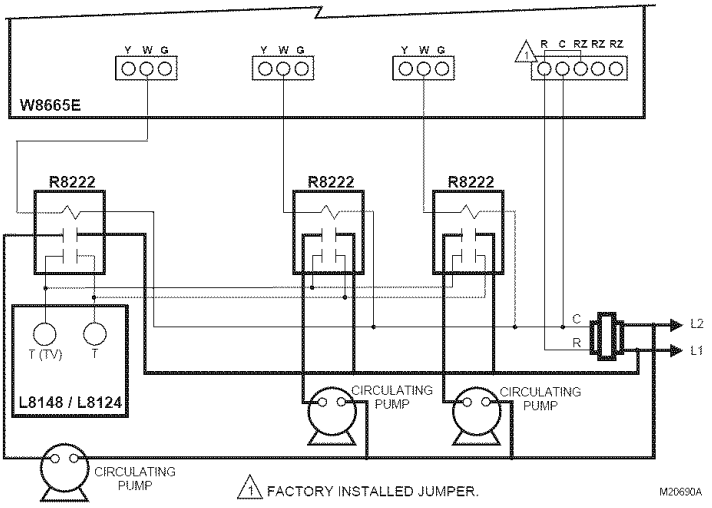

Fig. 15. Zoned hot water heat with circulating pumps using R8222 Relays, an L8148/L8124 Aquastat and a transformer.

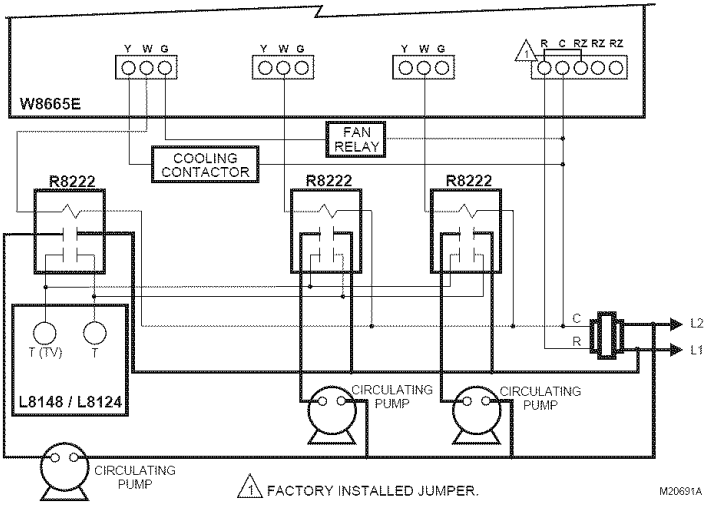

Fig. 16. Zoned hot water heat and single-zone cooling using circulating pumps, R8222 Relays, an L8148/L8124 Aquastat and a transformer.

SETUP

Setting Up W8665A,E to Receive Signals from the T8665A Thermostat(s)

The T8665A Thermostat(s) require(s) setup to send signals to the W8665 Receiver Module to operate:

- The W8665A Receiver is used for single-zone applications.
- The W8665E RF Zone™ Panel is used for up to three T8665A Thermostats for multi-zone applications.

IMPORTANT

Be sure the thermostat is at least five feet away from the W8665 during setup. Maximum distance is 200 feet.

Single Zone Applications (1 W8665A/1 T8665A)

1. Power up the W8665A and install the batteries in the T8665A Thermostat.
2. Place the W8665A Zone 1 DIP switch to the On position.

NOTE: The W8665A Zone 1 LED will flash.

3. Press the thermostat Fan key to On:
   a. The receiver accepts the message and stores the identity.
   b. The zone 1 LED stops flashing.
   c. The thermostat is now set to send signals to the W8665A Receiver.

NOTE: The word, On, and a fan blade appear in the thermostat display to indicate the thermostat is calling for the fan to turn on.

   d. Use Fan key to turn off fan.

4. Set System and Fan keys to the desired locations.

NOTE: At any time, if you want to stop the thermostat from sending signals to the W8665 Receiver, turn the DIP switch to Off. Then repeat steps 1-3 to set up the thermostat to send signals to the W8665 Receiver.

Multizone Applications (1 W8665E/Up to 3 T8665A)

1. Power up the W8665 and install the batteries in the T8665 Thermostats.
2. Set the thermostats so no zones are calling for system or fan.
3. Set up each zone separately to ensure that a unique address is used for each zone.
4. Place the zone 1 DIP switch on the W8665E Receiver to the On position.

NOTE: The W8665E zone 1 LED will flash.

5. Press the thermostat Fan key to On:
   a. The receiver accepts the message and stores the zone identity.
   b. The zone 1 LED stops flashing.
   c. The thermostat is now set to send signals to the W8665E Receiver.

NOTE: The word, On, and a fan blade appear in the thermostat display to indicate the thermostat is calling for the fan to turn on.

   d. Use Fan key to turn off fan.

NOTE: At any time, if you want to stop the thermostat from sending signals to the W8665 Receiver, turn the DIP switch to Off. Then repeat steps 2 through 5 to set up the thermostat to send signals to the W8665 Receiver.

6. Repeat steps 2 through 5 for zones two and three.
7. Set System and Fan keys to desired locations.
8. Attach the zone number sticker, included with the thermostat, onto the thermostat case on the inside of the thermostat cover. See Fig. 5.

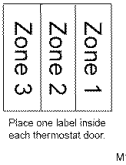

Fig. 17. Zone number stickers for inside of thermostat cover.

OPERATION

W8665A Sequence of Operation

On a call for heating or cooling, the thermostat sends a signal to the W8665A to bring on the heating or cooling until the call is satisfied. The Comm LED flashes when the W8665A receives a signal from the thermostat to turn on the system or approximately every ten minutes as a status update. On a call for heating, cooling or fan, the zone LED lights red.

W8665E Sequence of Operation

On a call for heating or cooling from any zone, the thermostat sends a signal to the W8665E to bring on the heating or cooling in that zone until the call is satisfied. The Comm LED flashes when the W8665E receives a signal from the thermostat in any zone to turn on the system or approximately every ten minutes as a status update. On a call for heating, cooling or fan, the zone LED lights red.

W8665E Single and Multi-Stage Operation

The first stage is energized by the thermostat.
To control multistage conventional and heat pump systems, the W8665 must be wired to a zone control panel that is able to control multiple stages of heat and/or cool (such as the EMM-3U Universal Electronic MiniZone Control Panel or TZ-4 TotalZone® Zone Control Panel). The zone panel (not the RF panel) controls these stages based on the number of zones calling or with a timer. See the Zone Control Panel Instructions for more details on how to control up to three stages of heat and two stages of cool.

LED Operation (See Table 4)

NOTE: See Setting up W8665A,E Receiver Module to Receive Signals from the T8665A Thermostat section.

Table 4. LED Operation.

LED	LED action	Meaning
Comm	Flashes rapidly for 2-3 seconds.	Indicates device is currently receiving information from the T8665 Thermostat.
Zones 1-3	On constantly.	Indicates system (heat, cool, or fan) is on.
Zones 1-3	Off constantly.	Indicates system (heat, cool, or fan) is off.
Zones 1-3	Flashes rapidly until signal is received.	Indicates zone is being set up to receive signals from a transmitter (T8665 Thermostat).
Zones 1-3	Flashes continuously.	Indicates a problem receiving signals from the transmitter (T8665 Thermostat). See Troubleshooting Guide for more information.

TROUBLESHOOTING (TABLE 5)

Table 5. Troubleshooting Guide.

Symptom	Possible Cause	Action
Display does not come on.	Thermostat is not being powered.	Check if batteries are present and installed correctly. • If batteries are in and installed correctly, replace thermostat.
Heating does not come on. System on indicator (🔥 = heat) is showing in display.	Communication is not being completed. Heating load at W8665 is not connected correctly.	End and repeat the call for heat. Check the Comm LED and Zone LED on the W8665 while the call is being made. • If the Comm LED does not flash when thermostat first calls for equipment, turn that zone DIP switch to Off. Refer to Setup section to reset the W8665. • If the Zone LED flashes continuously, turn that zone DIP switch to Off. Refer to Setup section to reset the W8665. • Check if 24 Vac is present: • Check between R and C on W8665. • Check between W of troubled zone and C on W8665. If voltage is present, troubleshoot heating system.
	Thermostat is too close to W8665.	T8665 Thermostat should be at least five feet away from the W8665 during setup and operation.
	Thermostat is too far away from W8665.	Maximum distance between W8665 and T8665A Thermostat should not exceed 200 feet.
Cooling does not come on. System on indicator (❄ = cool) is showing in display.	Communication is not being completed. Cooling load at W8665 is not connected correctly.	End and repeat the call for cool. Wait five minutes for the compressor delay to end. • If the Comm LED does not flash when thermostat first calls for equipment, turn that zone DIP switch to Off. Refer to Setup section to reset the W8665. • If the Zone LED flashes continuously, turn that zone DIP switch to Off.Refer to Setup section to reset the W8665. • Check if 24 Vac is present: • Check between R and C on W8665. • Check between Y of troubled zone and C on W8665. If voltage is present, troubleshoot cooling system.
	Thermostat is too close to W8665.	T8665 Thermostat should be at least five feet away from the W8665 during setup and operation.
	Thermostat is too far away from W8665.	Maximum distance between W8665 and T8665A Thermostat should not exceed 200 feet.
Wait is displayed and the call for cool has not started.	Compressor protection is in effect.	Compressor protection can be set on the T8665A from 0 to 5 minutes to prevent compressor damage due to rapid cycling. Wait until the compressor protection period expires.
2nd stage heat or cool (or 3rd stage heat) does not energize.	W8665 is not wired to a TZ-4 TotalZone™ Zone Control Panel or EMM-3U Universal Electronic MiniZone Control Panel that controls the multiple heat and cool stages.	Wire W8665 to TZ-4 TotalZone™ Zone Control Panel or EMM-3U Universal Electronic MiniZone Control Panel to control multi-stage systems. Check TZ-4 TotalZone™ Zone Control Panel or EMM-3U Universal Electronic MiniZone Control Panel and set correctly.

Table 5. Troubleshooting Guide.

Symptom	Possible Cause	Action
Fan does not come on with a call for electric heat.	Electric heat setting is not configured.	Set thermostat Installer Setup Number 2 to 1 for electric heat. See thermostat instructions for details.
	Fan load at W8665 is not connected correctly.	Check that 24 Vac is present between R and C.
		Check that 24 Vac is present between G and C.
		If voltage is present, troubleshoot system.

FCCID: CFS8DL5800TSTAT

CANADA: 1748A12113

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

This equipment generates and uses radio frequency energy and, if not installed and used properly; that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient the receiving antenna until interference is reduced or eliminated.
- Move the radio or television receiver away from the receiver/control.
- Move the antenna leads away from any wire runs to the receiver/control.
- Plug the receiver/control into a different outlet so that it and the radio or television receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user or installer may find the following booklet prepared by the Federal Communications Commission helpful:

"Interference Handbook"

This booklet is available under Stock No. 004-000-00450-7 from the US Government Printing Office, Washington, DC 20402.

The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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